

USSR

UDC 628.16.094.9

ZAGRAY, Ya. M., and MARINICH, V. K., Institute of Colloidal Chemistry
and Chemistry of Water, Academy of Sciences, Ukrainian SSR

"Continuous Ion Exchange Removal of Ions From Solutions"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 2, 1973, pp 11-13

Abstract: Equipment was evaluated for a continuous ion exchange with countercurrent movement of the liquid being treated and the fluidized ion exchange material. The ion exchange resin is moved through three columns undergoing, in sequence, sorption, desorption, and washing. The rate of displacement of the ion exchange resin along the three stages of the process depends on the concentration and the ratio of the ions being removed from the treated solution. The diffusion and separation equipment in which the stream of liquid to be purified enters the purification column from the bottom has been designed, constructed and tested.

1/1

USSR

UDC 628.543:661.183.12

ZAGRAY, YA. M., DOVQUSHA, P. I., EKKhKhV [expansion unknown] AN USSR (Academy of Sciences, Uzbekistan SSR)

"Principle Technological Systems for Salvaging Light Metals From Polluted Waters by Using a Continuous Exchange"

Kiev, Khimicheskaya Tekhnologiya, No 6, Nov/Dec 73, pp 52-55

Abstract: The effective utilization may be made of continuous flow ion exchange resins for purification of waters which are very hard or which contain iron or significant amounts (from 0.5 to 2.0 g/l) of suspended material if a pseudo-liquefaction technique is used. A system is shown for the continuous cycling of large volumes of solution over the ion exchange resins, to remove the light metals such as Zn^{+2} , Ca^{2+} , and Mg^{2+} . The total amount and % of the metal removed was more or less a function of temperature and pH, depending on the particular metal ion involved. A table shows one example of pH dependence.

1/1

ZAGRAY, Y.A.M.

CHEMISTRY

5055 61430 5 June 74 *Chemistry*
 A BASIC PROCESS FOR SEPARATING NON-FERROUS METALS FROM WASTE WATERS
 USING CONTINUOUS ION-EXCHANGE
 (Article by Y.A. M. Zagray, *Chem. Eng. Progress*, Vol. 74, No. 6, 1974, 1150-1155)
 (Sov. Pat. 1,511,000, 1973, 1150-1155)

Continuous progress in the field of synthesizing and producing ionites is expanding the possibility of using them for removing and utilizing the salts of non-ferrous metals extracted from waste water.

However, the use of this method faces difficulties, since in the process of using ionites to remove non-ferrous metals from waste water, the ion-exchange processes must be carried out in dilute solutions with low initial concentrations of extracted ions (the maximum allowable concentrations are from 0.001 to 1.0 mg/liter). In addition, fairly large volumes of solutions are submitted to treatment by ionites (large volumes of salts which include as inevitable components hard salts, iron salts, and considerable quantities of suspended substances (from 0.5 to 2.0 g/liter)).

Efficient use of ionites in such complicated systems is possible with continuous processes of ion-exchange using solidification. Procedures in which use is made of an apparatus of continuous action can easily be made fully automatic and will operate with high technological-economic indicators.

Use of the method of fluidization makes it possible to avoid use of mechanical devices for feeding, transmitting, and dosing the ionites throughout the stages of the process, and to operate completely hydraulic units.

In developing techniques for continuous ion-exchange extraction of non-ferrous metal salts from diluted solutions, use was made of the method of bringing the ionite into contact with the solutions in the fluidized state, with continuous synchronous recovery of a constant quantity of ion-exchange material from the lower portion of the sorption, desorption, and washing devices, and subsequent transferring and feeding into the upper portion of the devices, depending on the correlation of flow rates of the solutions and

1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EQUILIBRIUM DISTRIBUTION OF MONO AND DIVALENT IONS IN AN ION
EXCHANGER DILUTE AQUEOUS SOLUTIONS SYSTEM -U-
AUTHOR-(03)-ZAGRAY, YA.M., KOGANOVSKIY, A.M., YEREMENKO, A.G.
COUNTRY OF INFO--USSR
SOURCE--UKR. KHIM. ZH. 1970, 36(1), 49-54.
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ION EXCHANGER, AQUEOUS SOLUTION, ION EXCHANGE RESIN/(U)KB4 ION
EXCHANGE RESIN, (U)KU2 ION EXCHANGE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0462 STEP NO--UR/0073/70/036/001/0049/0054
CIRC ACCESSION NO--AP0128032
UNCLASSIFIED

2/2 007

CIRC ACCESSION NO--AP0128032

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FORMULA OF THE PREVIOUS PAPER IS MODIFIED FOR THE REPLACEMENT OF H PRIME POSITIVE OR OTHER MONOVALENT CATION BY A DIVALENT CATION (M) TO READ $1-\lambda = \beta - C_{SUBINFINITY PRIME2} + ((1 - \beta) C_{SUBH PRIME2} - K)$, WHERE β EQUALS $C_{SUBH PRIME2} - K$, λ EQUALS THE DISTRIBUTION OF THE METAL ION BETWEEN THE RESIN AND THE SOLN., β AND C_{SUBH} ARE THE METAL ION AND H PRIME POSITIVE CONCNS. IN THE RESIN, β SUBINFINITY IS EXCHANGE CAPACITY OF THE RESIN, C_{SUBH} IS H PRIME POSITIVE CONCNS. IN THE EQUIL. SOLN., AND K IS A SELECTIVITY CONST. TABLES AND GRAPHS DEMONSTRATING THE SATISFACTORY APPLICATION OF THIS FORMULA TO THE EQUIL. BETWEEN THE H AND NA FORMS OF KU-2 WITH ZN, MG, CO, CU, AND CA IONS AND OF THE NA FORM OF KB-4 WITH THE SAME CATIONS ARE GIVEN.

FACILITY: INST. KOLLOID. KHIM. KHIM. VODY, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 621.43.011:533+621.5:533

ZAGREBEL'NAYA, L. I., CHEREPANOV, V. P., and YAL'NITSKIY, L. F.

"Theoretical Study of Gas Parameters in Air-Jet Burners Using Air Preheating"

Samoletost. i tekhn. vozd. flota. Resp. mezhved. nauchno-tekhn. sb. (Air-craft Construction and the Technical Air Fleet, Republic Interdepartmental Scientific-Technical Collection), Vypusk (Issue), 18, 1970, pp 12-19 (from RZh-Mekhanika, No 12, Dec 70, Abstract No 12B448, Authors' Abstract)

Translation: Results of thermodynamic calculations of the temperature of gas in a combustion chamber T_K as affecting the temperature of gas on leaving the jet nozzle T_a and the gas exhaust velocity W_a are presented for the cases when the pressures in the combustion chamber $P_K = 5-25$ abs atm, the air excess factor $\alpha_T = 0.7-1.2$, and the degree of preheating $\Delta T_{B03A} = 500, 1000, \text{ and } 2000^\circ$. A comparative evaluation is made of the parameters of the burners, using air and oxygen as the oxidant, and also of the air-jet burners using different fuels (gasoline, natural gas, compressed gas, and coking gas). It is concluded that it is possible to use the parameters of the gas in gasoline-air burners with air preheating to characterize air-jet burners using natural, compressed, and coking gases (in the latter case, given several assumptions).

1/1

ElectroWelding

JPRS 54875
7 January 1972

UDC 621.791.75.002.5
DESIGN PRINCIPLES OF NUMERICAL PROGRAMMED CONTROL OF
ARC AND ELECTRON BEAM WELDING

Article by G. A. Shcheglov, V. I. Zarembo, V. I. Kuznetsov, and G. A. Kuznetsov, of the Electrowelding Institute, Acad. Ye. O. Etkin, Kiev, 23-25/ Aviaticheskaya Street, Moscow, No 8, 1971, submitted 18 March 1971, pp

The complexity of the solution to the problem of automating the movements of the operating organ is often caused by the random, uncontrolled nature of the information concerning the required trajectory of the movements when the parts to be joined are prepared with large tolerances and their position relative to the guiding motions of the working organ cannot be established with sufficient precision. All this calls for the need of determining the required trajectory of motion of the working organ cannot part individually.

In many cases, the peculiarity of the welding process is the need for moving the operating organ several times along the required trajectory (multipath welding). The scan line of the welded parts is then difficult to determine after the first scan is imposed. It is best to remember the primary trajectory and to perform the consequent operations in conformity with this information.

To solve this and other problems, the use of a programmed control system (PCS) with preliminary recording of the program is proposed. The generalized schematic of the system realizing the motion of the welding operation organ along its trajectory in the xy plane is shown in Fig. 1.

The program is recorded for the motion of the working organ along its trajectory, which is kinematically connected to sensors for the coordinates x and y, ϕ_x and ϕ_y , which convert the motion into electrical signals recorded in the memory device RD.

* Submitted to the All-Union Conference on Automatic Control of Welding Processes, Kiev, 13-14 October 1970.

- 1 -

[1 - USSR - N]

USSR

UDC: 621.791.754

ZAGREBENYUK, S. D., GIREVICH, S. M., BLASHCHUK, V. Ye.,
Electric Welding Institute imeni Ye. O. Paton

"Heat Treatment of Welded Joints in VTZ-1 Alloy"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 73, pp 69-70.

Abstract: A study is presented of the influence of heat treatment on the properties of joints in VTZ-1 alloy. Argon-arc welding with infusible electrodes was used to produce butt joints in the alloy in the following mode: $\delta = 3$ mm, $I_w = 300$ a, $U_d = 10$ v, $v_w = 31$ m/hr; $\delta = 7$ mm, $I_w = 500$ a, $U_d = 12$ v, $v_w = 29$ m/hr. The studies showed that the seams in VTZ-1 alloy had a primarily needle-like α' structure. Heating of seams to 800° C has no significant influence on the phase composition. The results of mechanical testing after hardening and aging showed that the strength of the seams was maximal after hardening from 860° C with aging at 500° C for 3 to 5 hours. Increasing aging time decreases the seam strength due to coagulation of the finely dispersed phases.

1/1

- 27 -

USSR

UDC 539.4

MAKSIMOV, Yu. A., KORNILOV, I. I., VOYNITSKIY, A. G., BLASHCHUK, V. Ye.,
ZAGREBENYUK, S. D., Moscow, Kiev

"Mechanical Properties of Alloys of Titanium with Vanadium and Aluminum as
Functions of Oxygen Content"

Problemy Prochnosti, No 11, 1971, pp 54-55.

ABSTRACT: The possibilities are studied for production of alloys of titanium
with high contents of oxygen, but retaining high mechanical properties. It
is shown that the addition of vanadium and aluminum produces oxygen-contain-
ing alloy with the required mechanical properties.

1/1

- 75 -

USSR

UDC 621.791.011:669.295

GUREVICH, S. M., and ZAGREBENYUK, S. D., Institute of Electric Welding imeni
Ye. O. Paton Institute

"The Welding of Titanium-Base Refractory Alloys (Review of Literature)"

Kiev, Avtomaticheskaya Svarka, No 12, Dec 70, pp 22-25

Abstract: A brief survey is presented of the various methods for using titanium in refractory alloys. These alloys came into general use in the 50's when builders became aware of their high melting point and durability. First attempts to use unalloyed titanium resulted in failure, since the durability of the metal quickly drops with increasing temperature as a result of the weakening of interatomic cohesion in the crystal lattice. Although it was first assumed that titanium was useless as a refractory metal, researchers found, in the course of developing titanium alloys, that the metal's alloys showed a much sharper increase in durability. The most effective metal for alloying with titanium to produce a refractory steel was determined to be aluminum, which has the additional advantage of being cheap. It was found that a highly durable alloy with little loss in plasticity could be obtained with an aluminum content of 7-8%; such a metal was also seen to be easily weldable.

1/1

USSR

UDC 629.7.017:658.562.001.24

ZAGRUTDINOV, G. M., and ZLATOUSOV, S. V.

"On One Method for Increasing Instrumental Confidence in the Results of Automated Controls"

Kazan', Tr. Kazan. aviats. in-ta (Transactions of the Kazan' Aviation Institute) Vyp 146, 1972, pp 45-54 (from Referativnyy Zhurnal--Metrologiya i Izmeritel'naya Tekhnika, No 1, 1973, Abstract No 1.32.111)

Translation: A system of automated control is considered, the reliability of which is characterized by the probability of the appearance of accurate results. A method for increasing the confidence in the results of control using multiple measurements is analyzed. For the system of automated control, the probability of malfunctions of which does not equal zero, the authors propose a processing of partial results of multiple measurements, on the basis of majority logic with subsequent averaging, by excluding the influence of malfunctions and random errors in the final result. The increase in the probability of accuracy of the final result using multiple measurement is computed for different coefficients of variation of the controlled parameter. The possibility of solving several types of problems which will be encountered in the projected system of automated control is indicated with the aid of graphs and a table. (2 tables; 3 illustrations; 5 bibliographic entries)

I/1

USSR

UDC 629.78.017:658.562.001.24

ZAGRUTDINOV, G. M., ZLATOUSTOV, S. V.

"Calculation of Instrumental Reliability of Results of Automatic Testing"

Tr. Kazan. Aviats. In-ta [Works of Kazan Aviation Institute], No 134, 1971, pp 72-78, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 2, 1972, Abstract No 2.41.160 from the Resume).

Translation: For tested parameters with various coefficients of formation of tolerances (z) and with various ratios of measurement error to tolerance for the parameter ($\delta_{\text{meas}}/\delta_{\text{par}}$), the basic components of instrumental reliability of the results of automatic testing are calculated -- the probability of false "useable" and "unuseable" decisions (ρ_1 and ρ_0 respectively), resulting from random errors in the measurement channels of the automatic testing systems. The graphic dependence of probabilities ρ_0 and ρ_1 on z and $\delta_{\text{meas}}/\delta_{\text{par}}$ is established. The possibility is shown of solving certain typical problems encountered in the stage of development of automatic control systems using the graphic dependences presented is demonstrated. 4 Figures; 1 Table; 3 Biblio. Refs.

1/1

- 34 -

USSR

UDC 615.281.221.1.547.547.831.6

VASIL'YEVA, V. F., ZAGRUDINOVA, R. A., SHCHUKINA, M. N., PERSHIN, G. N.,
and ZYKOVA, T. N., All Union Scientific Chemical-Pharmaceutical Research
Institute imeni S. Ordzhonikidze, Moscow

"Synthesis and Biological Properties of 6-Arylazo Derivatives of Substituted
1,2,3,4-Tetrahydroquinoline"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 9, Sep 73, pp 19-21

Abstract: A series of arylazo derivatives of 1,2,3,4-tetrahydroquinoline was
synthesized; 1-alkyl- (from C₁ to C₄) and 1-benzyl-1,2,3,4-tetrahydroquino-
lines were obtained by reduction of 1-substituted quinolinium iodides or bro-
mides with formic acid; reduction of 2-benzylquinoline with metallic sodium
in butanol gave the respective tetrahydroderivative (I), which condensed with
N,N-dimethylaminopropyl chloride gave 1-(N,N-dimethylaminopropyl)-2-benzyl-
1,2,3,4-tetrahydroquinoline; (I) also yielded 1-benzoyl-2-benzyl-1,2,3,4-
tetrahydroquinoline. All of these compounds were diazotized with phenyl-
diazonium, p-chlorophenyldiazonium, and p-nitrophenyldiazonium salts to yield
the respective 6-arylazo derivatives. Subjected to the assay against the
tubercule bacillus H₃₇Rv, three derivatives showed pronounced tuberculo-
1/2

USSR

VASIL'YEVA, V. F., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 9, Sep 73, pp 19-21

static activity: 6-phenylazo-2-benzyl-1,2,3,4-tetrahydroquinoline; 6-phenylazo-1-(γ -dimethylaminopropyl)-2-benzyl-1,2,3,4-tetrahydroquinoline hydrochloride, and 6-(p-nitrophenylazo)-1-(γ -dimethylaminopropyl)-2-benzyl-1,2,3,4-tetrahydroquinoline.

2/2

USSR

UDC 612.274

ZAGRYADSKIY, V. P., Academy of Military Medicine imeni S. M. Kirov, Leningrad

"Respiratory Changes During Increasing Hypercapnia"

Leningrad, Fiziologicheskii Zhurnal SSSR, No 12, 1971, pp 1,820-1,822

Abstract: Experiments with young males age 19 to 25 exposed to concentrations of carbon dioxide increasing at different rates revealed the following relationship: the slower the rate of increase in carbon dioxide, the more gradual and complete the activation of the compensatory mechanisms of external respiration. The functional changes were less pronounced when the CO₂ content of the inhaled air was increased to 6% at the rate of 0.05% a minute and especially at 0.01% a minute than when it was increased at the rate of 0.08% a minute.

1/1

1/2 021
UNCLASSIFIED
TITLE--POSSIBILITY OF ORDERED INTERMETALLIDE V SUB3 AL FORMATION -U-
PROCESSING DATE--11SEP70
AUTHOR--SHTOLTS, A.K., ZAGRYAZHSKIY, V.I., GELD, P.V., SUPIKOV, V.I.
COUNTRY OF INFO--USSR
SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(1), 118-19
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ORDERED ALLOY, VANADIUM ALLOY, CRYSTAL STRUCTURE, ALUMINUM
CONTAINING ALLOY, X RAY DIFFRACTION ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/1343
STEP NO--UR/0195/70/015/001/0118/0119
CIRC ACCESSION NO--AP0107816
UNCLASSIFIED
ZZZZZZZZZZZZ

2/2 021

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107816

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ALLOY V SUB3 AL WAS PREPD. BY
MELTING THE METALS (25 AT. PERCENT V) IN PRESENCE OF AT. THE INGOT WAS
ANNEALED AT 1000DEGREES FOR 80 OR 180 HR. X RAY POWDER PHOTOGRAPH
REVEALED DISORDERED AL SOLID SOLN. IN V AND STRONGLY DIFFUSED LINES
WHICH COULD BE DUE TO A CUBIC LATTICE OF TYPE CR SUB3 SI, A EQUALS 4.81
ANGSTROMS.

111111111111

UNCLASSIFIED

Graphite

USSR

UDC (546.831+546.821):546.261

USHAKOV, B. F., ZAGRYAZKIN, V. N., PANOV, A. S.

"Interaction of Graphite with Titanium and Zirconium"

Moscow, Neorganicheskiye Materialy, Vol 8, No 11, Nov 72, pp 1,921-1,925.

Abstract: Specimens of remelted iodide titanium and zirconium 99.9 wt.% pure and spectrally pure graphite were tableted. Diffusion annealing was performed in a vacuum at 1,200-1,900°C. Metallographic and x-ray studies indicated that TiC and ZrC layers were formed on the Ti and Zr. The diffusion layers grow evenly on the Ti; the carbide front is smooth. The diffusion layer on the Zr is uneven. The mechanism of formation and growth of the carbide layers on the titanium and zirconium was studied in detail at 1,200-1,400°C. The reaction diffusion factors were determined. It was shown that at 1,200°C and below, the process of formation and growth of the carbide layers is determined by boundary reactions. At higher temperatures, the determining stage of the process is diffusion. Equations are produced for the temperature dependences of reaction diffusion coefficients of carbon in the carbides TiC and ZrC.

1/1

USSR

UDC 547.341

MASHLYAKOVSKIY, L. N., ZAGUDAYEVA, T. A., IONIN, B. I., OKHRIMENKO, I. S.,
and PETROV, A. A., Leningrad Technological Institute Imeni Lensovet

"Synthesis of Derivatives of Thionephosphonic Acids With Conjugated Dienes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 12, Dec 72, pp 2648-2656

Abstract: Gradual replacement of the halogen atoms in PSCl_2 by alkoxy radicals produced new ester-acid chlorides and diesters of 2-methylbutadiene-1,3-thionephosphonic acid and bis-1,3-dienethionephosphonates. The ester acid chlorides of 1,3-dienethionephosphonic acids have higher thermal stability than the phosphoryl analogs because of the weaker basic properties of the P:S group and lower electrophilic strength of the phosphorus atom. Comparative analysis of the PMR spectra of the derivatives of 2-methylbutadiene-1,3-phosphonic and thionephosphonic acids showed that these compounds represent mixtures of various quantities of cis- and trans- isomers. The latter are stabilized by an intramolecular hydrogen bond with the chlorine atoms of the PSCl_2 group. P:S participates to a considerably lesser degree in formation of hydrogen bonding than the P:O group.

1/1

- 45 -

USSR

UDC 547.341

MASHLYAKOVSKIY, L. N., ZAGUDAYEVA, T. A., IONIN, B. I., and
OKHRIMENKO, I. S., Leningrad Technical Institute men Lensovet

"Synthesis of Ester Acid Chlorides, Mixed Esters and Amidoesters of
1,3-Dienylphosphonic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71,
pp 330-335

Abstract: The reaction of acid dichlorides with primary or secondary al-
cohols in presence of tertiary bases leads to replacement of Cl atoms
with formation of esters of acid chlorides, mixed esters and ester ami-
des 1,3-dienylphosphonic acids. The following compounds were syn-
thesized formula, b.p./mm, d_4^{20} , and n_D^{20} being reported $CH_2=CHC(CH_3)=$
 $CHP(O)(OC_2H_5)Cl$, 88°/1.5, 1.1441, 1.5055; $CH_3CH=CHCH=CHP(O)(OC_2H_5)Cl$,
108-110°/2, 1.1622, 1.5172; $CH_3CH=CHCH=CHP(O)(OC_3H_7-iso)Cl$, 135-137°/4,
1.1167, 1.5002; $CH_2=CHCH=CHP(O)(OC_2H_5)N(C_2H_5)_2$, 109-111°/3.5, 1.0214,
1.4852; $CH_2=CHC(CH_3)=CHP(O)(OCH_3)OC_2H_5$, 85.5-86°/1, 1.0674, 1.4832;
 $CH_2=CHC(CH_3)=CHP(O)(OCH_3)O-iso-C_3H_7$, 91-93°/2, 1.0846, 1.4856;
 $CH_2=CHC(CH_3)=CHP(O)(OCH_3)N(C_2H_5)_2$, 93-94°/1, 1.0225, 1.4928,
 $CH_3CH=CHCH=CHP(O)(OCH_3)-iso-C_3H_7$, 84-86°/3, 1.0519, 1.4797;
 $CH_2=CHCH=CHP(O)(OCH_3)OC_2H_5$, 79-80°/1, 1.0667, 1.4796.

1/1

- 75 -

Acc. Nr.

AP0055698

Abstracting Service:

CHEMICAL ABST.

Ref. Code

UR 0460

112164z Copolymerization of oligo esters of 1,3-diene-phosphonic acids with unsaturated alkyd resins. Zagudaeva, T. A.; Printseva, Z. V.; Mashivakovskii, L. N.; Okhrishchenko, I. S. (Leningrad. Tekhnol. Inst. im. Lensovet. Leningrad, USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(1), 50-2 (Russ.). Resin 135 (I) (glycerol phthalate modified with dehydrated castor oil) was copolymerized with a diethylene glycol oligoester (II) of 2-methyl-1,3-butadiene-1-phosphonic acid in the presence of cumene hydroperoxide at 120°. Addn. of 0.5% 1,4-C₆H₄(OH)₂ (III) reduced the crosslinking rate. The copolymerization rate of I with II was inversely proportional to II concn., presumably due to the high reactivity of II, which overshadowed the effect of III. The copolymer gave flame resistant, flexible, crosslinked polymers and films.

CKJR

Y/

REEL/FRAME
19841007

CB 7

USSR

UDC 632.9

ZAGULYAYEV, A. K., Candidate of Biological Sciences, Zoological Scientific
Research Institute, Academy of Sciences USSR

"Stem Moths -- Grain Pests"

Moscow, Zashchita Rasteniy, 1971, pp 40-42

Abstract: A description is given of morphological and biological characteristics of a group of moths of the family Ochsenheimeriidae which attack grains -- wheat, rye, and millet, as well as such perennial grasses as timothy, couch grass, brome grass, wild rye, meadow grass, and others. The females usually lay their eggs at the end of summer on winter grains and perennial wild grasses. The caterpillars, upon emerging from the eggs, penetrate into the stems and winter there, eating their way upward to the ears. The affected ears turn white, dry up, and can be readily distinguished from green healthy plants. In some years as much as 35% of the rye crop is affected. Species of this family are found throughout the USSR except the Far North and Siberia, in European countries, and in Asian and African countries along the Mediterranean Sea. Of the 18 species found in Eurasia, only four are widely prevalent in the USSR. These are the reyn stem moth -- *Ochsenheimeria taurella*,
1/2

USSR

ZAGULYAYEV, A. K., Zashchita Rasteniy, 1971, pp 40 -42

found almost everywhere in the USSR except the Northern areas, Western Europe, Northern Africa, Turkey, and Iran; the grain stem moth -- Ochseneimeria vacculella, found in the central regions of the USSR, Kazakhstan, Central Asia, and practically all countries of Western Europe; the feather grass stem moth -- Ochseneimeria capella, widely prevalent in the Southern parts of the European SSR, Northern Kazakhstan, and in the steppes of Hungary; couch grass stem moth -- Ochseneimeria bisontella, found in the USSR from Karelia and the Baltic regions all the way to the Caucasus, and practically everywhere in Western Europe. No specific methods of prophylaxis and control of these moths have as yet been discovered. The best method so far is to detect foci of mass propagation of the moths, and destroy these prior to the emergence of caterpillars and their penetration into plant stems.

2/2

- 2 -

USSR

UDC 669.14.018.298'295:620.186.8

ZAGULYAYEVA, S. V., and VINOGRAD, M. I.

"Growth of Austenite Grains in Structural Steel Containing Titanium"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1972, pp 40-42

Abstract: The growth kinetics of austenite grains in 15KhGNTA steel with titanium nitrides was studied. Since the presence of insoluble titanium nitrides particles in the steel prevents the formation of large austenite grains, an attempt was made to remove them by refining the steel in an open-hearth furnace (OH), in an electric arc furnace under vacuum (EAV), and with electroslog (ES) and electron beam (EB) methods. The amount of nitrides left in the steel after refining was 0.0953, 0.0525, 0.0551, and 0.0307% for the OH, EAV, ES, and EB methods, respectively. After the OH refining no growth of austenite grains in 15KhGNTA steel was observed at 850-950°C. A gradual appearance of grains was observed when the temperature reached 1050°C, and very active grain growth was observed at 1100°C. The growth kinetics of grains in the steel refined by the EAV and ES methods was similar to that of the OH refined steel. A quite different type of kinetics of grain growth was observed in the case of EB refining. At 950-1050°C a mixture of small

1/2

USSR

ZAGULYAYEVA, S. V., and VINOGRAD, M. I., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1972, pp 40-42

and large grains appeared; at 1100-1200°C the grains grew larger, and at temperatures above 1200°C an intensive increase in the grain size was evident. Although OH, EAV, and ES refining lowered the concentration of nitrides in the steel somewhat, it was not sufficient to eliminate their inhibiting effect on the growth of large grains. After the EB refining the number of nitride particles was low and they did not influence the motion of dislocations much; this resulted in active grain growth.

2/2

- 60 -

USSR

UDC 613.644:621.431.75

MEN'SHOV, A. A. and ZAGURSKAYA, L. A., Institute of Industrial Hygiene and Occupational Diseases and Institute of Civil Aviation Engineers

"Hygienic Evaluation of Intermittent Noise Produced by Testing Hydraulic Aviation Units"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 10, 1971, pp 9-12

Abstract: Workers in aircraft repair plants are exposed to noise levels ranging from 88 to 107 db (14 to 18 db above state standards) lasting about 4 min and alternating with 2 min pauses during which the background noise (from adjacent work areas) ranges from 68 to 90 db. The results of hearing and other physiologic tests given to 6 men aged 28 to 35 with 1 to 3 years experience on the job showed little significant change 3 hours after the end of work in auditory sensitivity, the threshold rising no more than 10 db, i.e., within the limits of auditory adaptation. However, pronounced changes were observed in the critical frequency of "acoustic flickers" (decrease from about 134 to 120 flickers a second), muscular endurance (decrease from 117 to 92 sec), and slowing of the pulse (from 73 to 68 beats per min). These indexes did not return to normal even after 30 min of rest following the end

1/2

USSR

MEN'SHOV, A. A. and ZAGURSKAYA, L. A., Gigiyena Truda i Professional'nyye Zabolevaniya, No 10, 1971, pp 9-12

of the work shift. Arterial pressure, short-term memory, and rate of performance of psychophysiological tests remained normal.

2/2

- 40 -

USSR

UDC 613.644:612.017

ZAGURSKAYA, L. A., Institute of Civil Aviation Engineers and
Scientific Research Institute of Labor Hygiene and Occupational
Diseases

"The Effects of Changing Levels of Intermittent Noise on Man"

Kiev, Vrachebnoye Delo, No 7, 1971, pp 132-134

Abstract: Airplane mechanics were exposed for two hours to three different levels of noise -- 104 db for 4 min, 92 db for 6 min, and 60 db for 5 min, with 5-min pauses between each cycle. Study of various physiological functions showed that the noise significantly lengthened the latent period of a simple acoustic-motor reaction, increased the number of erroneous responses to visual stimuli, and decreased static muscular endurance, but only slightly raised the threshold of auditory sensitivity. The subjects characterized the noise as disagreeable and complained of a "ringing" and "clogging" of the ears, headache, sleepiness, and fatigue. These phenomena disappeared after

1/2

USSR

ZAGURSKAYA, L. A., Vrachebnoye Delo, No 7, 1971, pp 132-134

30 minutes' rest, but the physiological indexes had not returned to normal by that time. Another series of experiments with various noise parameters and durations showed that shifts in the physiological functions studied were slight and insignificant after exposure to 104 db for 0.5 min, 87 db for 9.5 min, and 60 db for 5 min, indicating that these are the maximum permissible levels for individuals engaged in airplane repair work.

2/2

- 82 -

USSR

UDC 541.124:541.6:547.1'118

KOSTYANOVSKIY, R. G., FOMICHEV, A. A., ZAGURSKAYA, L. M., and ZAKHAROV, K. S.,
Institute of Chemical Physics, Academy of Sciences, USSR

"The Nature of Lowering the Pyramidal Inversion Barrier of Phosphorus
in Acylphosphines"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 73,
pp 1915-1916

Abstract: High sensitivity of the pyramidal inversion to the type of substituent at the acyl group leads to the conclusion that the factor responsible for the lowering of the inversion barrier in acylphosphines is the p- π -conjugation of the unshared electron pair of phosphorus with the carbonyl group. The antiinductive substituents, activating the conjugation of the CO group with the electronic pair of the phosphorus facilitate the inversion, while the mesomeric favoring ones counteract the inversion.

1/1

- 31 -

USSR

UDC: 621.374.32

ARTYUKH YU. N., GULEVSKIY, E. K., ZAGURSKIY, V. YA., Institute of Electronics and Computer Technology, Academy of Sciences of the Latvian SSR.

"The Dynamic State of a Flipflop with Digital Input Based on Tunnel Diodes and Transistors"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, No 2, 1970, pp 103-103

Abstract: After a brief introduction to the mathematical description of flipflop circuits, a particular circuit is described and its schematic diagram is given. The circuit involves two diodes, two tunnel diodes, and three transistors. The threshold apparatus is a diode resistive impulse voltage comparison element, loaded on an amplifier discriminator. The discriminator is a delay relaxer with a reactive transistor as energy accumulator.

The circuit is described in mathematical terms, showing that the threshold of operation to place the flipflop in the 1 state is equal to the operational charge accumulated, while to place it in the 0 state, it is equal to this charge minus the integral value of the input current over one cycle.

The circuit was constructed and tested experimentally, and was also simulated on a digital computer. Parasitic inductive parameters were not considered in the analysis. The results of the simulation were reasonably close

1/3

USSR

ARTYUKH, YU. N, et al, Izvestiya Akademii Nauk Latvyskoy SSR, No 2, 1970,
pp 103-108

to the experimental values.

The authors draw the following conclusions:

1) The inertia necessary in a signal discrimination circuit for a counter input flipflop is provided by the accumulation and discharge of charges in the base of a diode in the comparison circuit and by the modulation of the operational threshold value of the relaxer; appropriate choice of circuit parameters makes the circuit operational over a wide range of input impulse frequencies;

2) Characteristics of relaxer operation in the circuit considered ensure a small delay of the output signal (on the order of a few nanoseconds) and its standardization in amplitude and duration;

3) The use of a transistor as an inverting input bypass element on the 0 setting of the flipflop ensures the necessary coordination of the timing states in the circuit without significantly worsening its frequency characteristics;

2/3

- 42 -

USSR

ARTYUKH, YU. N., et al, Izvestiya Akademii Nauk Latvyskoy SSR, No 2, 1970, pp 103-108

4) The utilization of well known digital models of PP elements, as described by Ashar, Ghach, Aldridge, and Patterson in the IBM Journal of Research and Development, Volume 7, No. 3, 1963, for a large signal is satisfactory for a qualitative investigation of transient processes in the circuit, but does not provide the necessary accuracy for quantitative evaluation;

5) The speed of operation of the circuit is basically determined by the characteristics of the PP elements used; using a type 1T308, the limiting frequency of flipflop operation in a binary multiposition counter is 70 megahertz, while with a type 1T313 this frequency limit could be approximately doubled.

There are four references, two Soviet and two American.

5214

3/3

USSR

UDC 591.04:612.014.3

ZAGUSKIN, S. L., and KOGAN, Ye. A., Recommended by the Department of Human and Animal Physiology, Rostov State University

"Effects of Rhythmic Mechanical and Light Stimulation on the Impulse Activity of Neuroreceptor Cells"

Moscow, Biologicheskiye Nauki, No 5, 1971, pp 27-35

Abstract: To study the effects of rhythmic stimulation on the rhythmic activity of neurons, the single stretch receptor neuron of the river lobster was isolated and its cell body was stimulated with repetitive light and mechanical (stretch) stimuli with a frequency ranging from 20 to 200 stimuli per minute, while action potentials were recorded from the nerve fiber. Repetitive mechanical stimulation of sufficient intensity and frequency suppressed the generation of certain action potentials and thus disrupted the rhythmic discharge by the cell body. Rhythmic stimulation with light remained without effect. However, prolonged continuous illumination of the cell body with ultraviolet rays increased the frequency of action potentials and caused arrhythmia. The rhythm of the stimulation was never duplicated by the rhythm of the action potentials. The findings indicate that the receptor rapidly responds to changes in external stimulation and discharges an appropriately coded information to the center.

1/1

USSR

UDC 621.317.77 5

MISYURA, V. A., PIVEN', I. A., SURKOV, A. K., SOMOV, V. G.,
KARATEYEV, N. G., ZAGVOZDEIN, B. V., NABOKA, A. M., LITVINENKO,
O. A., and KAPANIN, I. I.

"Systems of Phase and Doppler Measurements in a Mobile Radio
Ionosphere Complex"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
Sekt. 3 (Tenth All-Union Conference on the Propagation of Radio
Waves; Report Theses; Section 3--collection of works) "Nauka,"
1972, pp 109-113 (from RZh--Radiotekhnika, No 10, 1972, Abstract
No 10A426)

Translation: A device for phase probing and a system for recording
the Faraday and Doppler effects in artificial earth satellite sig-
nals and rockets, including a series of multichannel receiver and
recorder devices operating at two, three, and four coherent fre-
quencies (20, 40; 24, 48, 144; 20, 30, 90, 180; 150 and 400 MHz,
and others), are described. The difference between the phase
probing system and those now known is the separation of the mea-
sured phase differences with a heterodyne frequency and consequent
narrow-band filtration. Resume
1/1

1/2 015
UNCLASSIFIED
TITLE--MOLECULAR PARAMETERS AND THE STRUCTURE OF ASPARATATE TRANSAMINASE
AND ITS SUBUNITS -U-
AUTHOR--(03)--POLYANOVSKIY, D.L., ZAGYANSKIY, YU.A., TUMERMAN, L.A.
PROCESSING DATE--16OCT70
COUNTRY OF INFO--USSR
SOURCE--MOLEKULYARNAYA BIOLOGIYA, 1970, VOL 4, NR 3, PP 458-470
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--TRANSAMINASE, ENZYME ACTIVITY, FLUORESCENCE, PROTEIN,
SEDIMENTATION, BROWNIAN MOTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0224
STEP NO--UR/0463/70/004/003/0458/0470
CIRC ACCESSION NO--AP0120919
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120919

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS SHOWN THAT THE MOLECULES OF ASPARTATE TRANSAMINASE (CE 2.6.1.1) DISSOCIATE INTO TWO SUBUNITS IN ALCALINE (PH 11-12) AS WELL AS IN ACID (PH 2.5-3.0) MEDIA. CONDITIONS FOR REASSOCIATION AND RENATURATION OF THE SUBUNITS TO THE ENZYMATICALLY ACTIVE MOLECULE ARE DESCRIBED. THE FLUORESCENCE PARAMETERS (LIFE TIME τ , RELATIVE QUANTUM YIELD Φ , DEGREE OF POLARIZATION P AND SPECTRAL DISTRIBUTION) WERE MEASURED FOR THE DNS PROTEIN (1, DIMETHYLAMINONAPHTHALENE, 5, SULFONYL) BOTH WITH THE NONDISSOCIATED ENZYME MOLECULE AND WITH THE SUBUNITS. FROM THESE DATA THE VALUES OF ROTATIONAL RELAXATION TIME WERE CALCULATED (146 AND 48 NSEC RESPECTIVELY). THE VALUES OF AXIAL RATIO FOR BOTH SPECIES OF MACROMOLECULES APPROXIMATED AS RIGID ROTATIONAL ELLIPSOIDS WERE CALCULATED FROM THE FLUORESCENCE DATA AS WELL AS FROM THE RESULTS OF HYDRODYNAMIC MEASUREMENTS (SEDIMENTATION, DIFFUSION, VISCOSITY). THE VALUES CALCULATED ON THE BASIS OF THESE TWO SOURCES OF INFORMATION AGREE QUITE WELL FOR THE NONDISSOCIATED MOLECULE BUT DIFFER SIGNIFICANTLY FOR THE SUBUNITS. TO RECONCILE THESE RESULTS, A NEW HYPOTHETICAL MODEL OF THE TRANSAMINASE MOLECULE IS PROPOSED, BASED ON THE ASSUMPTION THAT EACH SUBUNIT CONSISTS OF TWO INDEPENDENTLY ROTATING NUCLEI. THE DEPOLARIZATION OF FLUORESCENCE IS DETERMINED BY BROWNIAN ROTATION OF SUCH A NUCLEUS WHEN THE SUBUNITS ARE SEPARATED, BUT BY ROTATION OF THE ENZYME MOLECULE AS AN ENTITY WHEN THE SUBUNITS ARE IN COHESION AND FORM A NONDISSOCIATED MOLECULE. FACILITY: INSTITUTE OF MOLECULAR BIOLOGY, ACADEMY OF SCIENCES, USSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 669.168.001

MCHEDLISHVILI, V. A., IGNAT'YEV, V. S., ZAGYU, T. N., and KHITRIK, S. I.

"Oxide Inclusions in Ferrotitanium and Ferroniobium"

Moscow, Stal', No 7, Jul 71, pp 614-615

Abstract: The authors studied the quantity and composition of oxide inclusions in standard ferroalloys, viz. 30-percent ferrotitanium Ti1 and 60-percent ferroniobium Nb1 and Nbn0, after isolating them by chlorination by converting the metallic components of the alloys into volatile chlorides during heating under the action of gaseous high-purity chlorine with subsequent vacuum sublimation of the chlorides. It was found that the oxide inclusions in ferrotitanium and ferroniobium are mainly of endogenous origin. Those in ferrotitanium are represented by corundum (α -Al₂O₃), β -alumina with an admixture of TiO₂ and Cr₂O₃, mullite, helenite, and silicates of the sphene and fayalite type. Ferroniobium contains inclusions of corundum, complex aluminosilicates and oxides of the columbite and mossaite type. The oxide inclusion content of ferrotita-

1/2

USSR

MCHEDLISHVILI, V. A., et al., Stal', No 7, Jul 71, pp 614-615

nium is 0.2-0.3 percent, low-silicon ferroniobium 0.04-0.14 percent and high-silicon ferroniobium 0.1-0.3 percent. The inclusions are distributed much more uniformly in ferroniobium than in ferrotitanium. The principal component of inclusions in both ferroalloys is alumina Al_2O_3 . There are also significant quantities of SiO_2 , FeO and TiO_2 . Ferroniobium also contains niobium and tantalum oxides; and ferrotitanium -- insignificant quantities of manganese, calcium and chromium oxides. The calculated oxygen content of the inclusions for both alloys practically coincides with that found by the vacuum melting method (0.08-0.14 percent for ferrotitanium, 0.03-0.06 percent for low-silicon ferroniobium and 0.08-0.12 percent for high-silicon ferroniobium).

- END -

CSO: 1842-W

2/2

- 88 -

USSR

UDC 617-001.34-084(47)

ZAICHENKO, A. I., Main Administration of the Ministry of Health USSR

"Some Methods of Preventing Vibration Sickness in the USSR"

Moscow, Gigiyena Truda i Professional'nyye Zaboлевaniya, No 2, 1970, pp 7-9

Abstract: The technological revolution in industry and construction has been accompanied by an increasing incidence of vibration sickness because of the many processes, equipment, and instruments that expose their operators to vibrations well above permissible levels, mishandling of tools, poor working conditions, ignorance of the initial symptoms of the disorders caused by vibration, etc. Preventive efforts are hampered by an insufficient number of devices to measure vibration. Suggested ways of improving the situation, include strict enforcement of existing state standards for the use of pneumatic and other vibration-producing tools, better design of tools, processes, and work places to include arrangements for vibration and noise insulation, and careful organization of work involving the use of a vibration-producing machine or tool indoors and outdoors, so as to preclude extended exposure and chilling of the hands.

1/1

- 64 -

Instruments and Equipment

USSR

UDC 615.471.57.086.12

ZAICHKIN, E. I., and FIKHMAN, B. A.

"A Simple Device for Freeze-Etching of Biological Specimens"

Moscow, Laboratornoye Delo, No 12, 1971, pp 741-742

Abstract: Due to the fact that complex and expensive vacuum ultramicrotomes are unavailable in many laboratories for the preparation of slides by the freeze-etching method for electron microscopes, the authors designed a simple device which can be successfully used in combination with the vacuum freezing unit. A detailed description of the device is given. The device makes it possible to obtain complementary images of both surfaces produced by a cut, that is, the first slide is not eliminated, as is the case of expensive freezing ultramicrotomes. The device was already tested and produced good results.

USSR

UDC 578.67

FIKHMAN, B. A. and ZAICHKIN, E. I., Institute of Biochemistry and Physiology of Microorganisms, Academy of Sciences USSR, Pushchino-na-Oke

"Freeze-Etching of Microorganisms for Electron Microscopy"

Moscow, Mikrobiologiya, Vol 41, No 1, Jan/Feb 72, pp 168-172

Abstract: A modification of the freeze-etching method for fixation of microorganisms was tested using *Endomyces magnusii*. A concentrated suspension of cells in water containing 0.1% gelatin was used. The cells were frozen in the form of a thin layer between two copper grids by dipping them into fluid Freon 22 cooled by liquid nitrogen. The object was then transferred into a vacuum evaporator and using a special manipulator, the copper plates were separated in a vacuum of 5×10^{-6} mm Hg. Both halves were shadowed using platinum-carbon mixture and covered with a carbon film. After cleaning and mounting on specimen screens with a Formvar support, the preparations were observed under an electron microscope type JEM-7A. The electron microscope pictures revealed that the method of spalled surface enables one to obtain replicas of both uncovered complementary surfaces of the object.

1/1

1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--DIELECTRIC FILMS BASED ON CERIUM DIOXIDE -U-
AUTHOR--(03)-AFANASYEV, K.L., ZAICHKIN, N.N., SACHAVSKIY, A.F.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSR. UCHEB. ZAVED., FIZ. 1970, 13(2), 156-8
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--DIELECTRIC LAYER, DIELECTRIC MATERIAL, CERIUM OXIDE, ALUMINUM
COMPOUND, ELECTRIC PROPERTY

CONTRCL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1404

STEP NO--UR/C139/70/013/002/0156/0158

CIRC ACCESSION NO--A10120197

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0120197

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIELEC. CHARACTERISTICS AND
ELEC. CAPACITY OF AL-CEO SUB2-AL STRUCTURES WERE STUDIED IN THE RANGE
20-160DEGREES. THE EFFECT OF THERMAL TREATMENTS IS POINTED OUT.
FACILITY: TAGANROG. RADIOTEKH. INST., TAGANROG, USSR.

UNCLASSIFIED

USSR

UDC 541.15

SOBOLEV, V. S., ZAIDES, A. L., and KLAUZEN, N. A., Scientific Research
Institute of Tire Industry, Moscow

"The Effect of Radiation Temperature on the Nature of Radiation Induced
Structuralization of cis-Polybutadiene"

Moscow, Khimiya Vysokikh Energiy, Vol 7, No 4, Jul-Aug 73, pp 358-361

Abstract: An increase in the temperature of γ -irradiation of the stereo-regular polybutadiene in the range 20-160° leads to considerable increase in the rate of crosslinking. At the same time the strength of unfilled vulcanizates is decreased, as well as the maximum degree of crystallization and intensity of crystal formation during the stretching. It has been assumed that these changes are connected with the polymerization processes taking place, leading to the formation of polyfunctional nuclei.

1/1

- 69 -

UZBEK TRADE UNION LEADER REVIEWS PROBLEMS, GOALS
[Speech by ~~Abdulla A. A.~~ at the 2nd All-Union Congress of the Uzbek Trade Union Council, at the Uzbek Trade Union Congress, "Marking Russian 4 March 1977, p. 2]

Congress delegates! Our entire nation is living by the ideas and decisions of the 2nd All-Union Congress. The Congress has aimed the party and all the Soviet people with a clear political line and with a specific program of actions expressing the interests, the wishes and goals of the people. With enormous enthusiasm, the working class, the kolkhoz peasantry and following the path indicated by the party to new victories in communist construction.

In carrying out their activities under the leadership of the Central Committee of the Uzbekistan Communist Party, the trade unions have participated in solving numerous tasks related to the development of the republic's economy. From working out state plans to the management of each enterprise, the trade unions have played an important role in the production and social activities of the collective in the production. In industrializing a community with their own enterprises, property, they have encouraged the state to labor energy and the strengthening of labor legislation, and they have been concerned with improving the cultural and domestic requirements of the workers, as well as for their health.

I shall be glad to report to the Congress on the work of the Uzbek Republic Trade Union Council during the report period, and to take up certain tasks related to the further improvement in the work of the trade union organizations of Uzbekistan.

USSR

UDC 621.311.22.002.51/.52.004.67:65.612.2(084.21)

ZAICA, A. A., BUGOSLAVSKIY, D. S.

Setevoy grafik na elektrostantsiyakh. (PERT Chart at Electric Power Plants), Moscow, Energiya Press, 1970, 272 pp, ill., 96 k (from RZh-Elektrotehnika i Energetika, No 4, Apr 71, Abstract No 4 Yel56 K)

Translation: In the first part of the book a study is made of the problems of organization of control of capital repairs, the basic concepts of PERT charts are presented, and the problems of calculating capital repair PERT charts for power equipment, optimization of PERT charts and application of computers are investigated. The second part of the book is devoted to analysis of the efficiency of using PERT charts when repairing power system equipment. In this part a study is made of the operating principles and structural features of the PERT system in power equipment repairs, labor expenditure norms for calculating the PERT charts, problems of improving the planning of labor expenditures and material resources for repairing the power system equipment. The procedure is presented for estimating the savings from introducing the PERT method. The book is intended for engineering and technical workers of the power system, power plants and power repair enterprises and also for teachers and students at the universities and specialized secondary schools.

1/1

- 100 -

USSR

UDC 577.1:615.7/9

ZAİKA, A. P.

"Detoxification of Dimethyl Chlorovinyl Phosphate in Animals"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Substances. Republic Interdepartmental Collection), 1972, No 4, pp 24-26 (from RZh-Biologicheskaya Khimiya, No 4, Feb 73, Abstract No 4 F1913 by G. A. Firsova)

Abstract: In vitro experiments, the kinetic method was used to determine the detoxification of dimethyldichlorovinyl phosphate (I) by rabbit liver, kidney, lung, spleen, muscle, brain, heart, and intestinal wall tissues, skin, blood plasma and erythrocytes. Ampul acylhydrolase of acylcholines (KF 3.1.1.8) and butyrylcholine served as the substrate. The degree of detoxification of I after contact with the biological substrate was assessed from changes in the constant of cholinesterase inhibition at an optimum I concentration ($8 \cdot 10^{-5}$ M). The maximum detoxification of I was found to take place in the presence of blood plasma and intestinal wall tissue; it was lowest in the presence of brain and muscle tissues. Rabbit skin had a detoxifying effect on I.

1/1

USSR

UDC 517.1:615.7/9

MARCHUK, R. YA., LIPKAN, G. N., ZAIKA, A. P., KONDRATYUK, V. I. and IVANOVA, ZH. M.

"Detoxification and Anticholinesterase Action of Two Representatives of Acid Fluorides of Alkyl Esters of Alkylthiophosphonic Acid"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Substances, Republic Interdepartmental Collection), 1971, vyp 3, pp 75-79 (from RZh-Biologicheskaya Khimiya, No 17, Sep 71, Abstract No 17F2100)

Translation: In experiments on rabbits it is shown that there is no direct relationship between toxicity, anticholinesterase activity and detoxification in the tissues for isopropyl and ethyl ethers of methylfluorothio-phosphonic acid.

1/1

USSR

UEC 621.382.82

GORYUSHKIN, M. I., ZAIKA, V. V., KEREKESNER, I. P., LYAKHOVICH, V. V.,
PETIN, Yu. A., SEMENOVA, N. V.

"Integrated Circuit of a Low-Frequency Amplifier Based on MOS Transistors"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic
Technology. Scientific and Technical Collection. Microelectronics),
1971, vyp. 1(27), pp 14-19 (from RZh-Radiotekhnika, No 8, Aug 71,
Abstract No 8D91)

Translation: The paper describes integrated amplifiers with high input
impedance which can be realized on the basis of MOS transistors which
ensure high input impedance, temperature stability of high input im-
pedance, high packing density and low power consumption. Resumé.

1/1

- 85 -

USSR

UDC: 621.396.6-181.5

ZAICA, V. V., KOVAL', A. A.

"Tunable Nonhomogeneous RC Structures With Distributed Parameters"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Technical Electrical Communications--collection of works), Moscow, "Svyaz'", 1970, pp 142-144 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V204)

Translation: The paper presents the results of an experimental check on the theoretical characteristics of RC systems with distributed parameters showing the advantage of nonhomogeneous systems over homogeneous systems. One illustration, bibliography of four titles. Resumé.

1/1

- 37 -

1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--CONCENTRATION WAVE PROPAGATION IN TWO DIMENSIONAL LIQUID PHASE
SELFOSCILLATING SYSTEM -U-
AUTHOR-(02)-ZAIKIN, A.N., ZHABOTINSKIY, A.M. 2
COUNTRY OF INFO--USSR
SOURCE--NATURE (LONDON) 1970, 225(5232), 535-7
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY
TOPIC TAGS--BRCMATE, MALONIC ACID, CATALYST, OXIDATION, WAVE PROPAGATION,
REDOX REACTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1984/1348 STEP NO--UK/0000/70/225/000/0535/0537
CIRC ACCESSION NO--AP0100C11
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0100011

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY ON OSCILLATING CHEM. REACTIONS IN THE SYSTEM BROMATE BROMOMALONIC ACID FERROIN (INDICATOR AND CATALYST) WAS MADE. THE REACTION WAS CARRIED OUT IN A THIN LAYER OF SOLN. AT 20DEGREES. PHOTOGRAPHS WERE TAKEN AT 1 MIN INTERVALS. IN THE 1ST PHOTOGRAPH, THE CATALYST IS COMPLETELY REDUCED, AND SUBSEQUENT PHOTOGRAPHS SHOW IT STARTING TO BE OXIDIZED AT PARTICULAR POINTS (LEADING POINTS) FROM WHICH CIRCULAR WAVES OF OXIDN. ARE PROPAGATED. THE 4TH PHOTOGRAPH SHOWS OXIDN. TAKING PLACE IN AREAS NOT REACHED BY THESE WAVES. THE NEXT PHOTOGRAPHS SHOW WAVES COMING FROM LEADING CENTERS OXIDIZING ALL THE SPACE STEP BY STEP. RADIAL SYM. PATTERNS ARE ALSO OBSD. THE OBSD. PHENOMENON IS CHARACTERIZED BY THE OCCURRENCE OF PROGRESSIVE CONCN. WAVES AND BY A SPACE STRUCTURE SUPPORTED AT THE EXPENSE OF REDOX REACTION ENERGY. A MODEL FOR THE WAVE PROPAGATION IS PROPOSED.

UNCLASSIFIED

Instrumentation and Equipment

USSR

UDC 669.7/.053.2(088.8)

BYSTROV, V. I., ZAIKIN, A. P.

"Device for Slaking of Lime"

USSR Author's Certificate No 311877, filed, 30/03/70, published 5/10/71
(Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract
No 5 G202 P).

Translation: In order to increase the degree of hydration with minimum losses of CaO and product, a fire grate made of perforated pipe connected to a source of compressed air is installed over the bottom of the upper section of slaking unit; a gate is installed between the sections of the slaking unit, and the lower section is equipped with a pipe for drainage of the slaking vapors.

1/1

USSR

UDC 632.95

MEL'NIKOV, N. N., SOKOLOVA, YE. M., TRUKOV, P. P., VOLKOVICH, S. D.,
DYISHAKOVA, G. K., GOINSHIN, M. M., ABELENTSEV, V. I., UZHAIKITS, N. S.,
FEDOSEYENKO, L. G., ZAKHIN, B. A., DVUKISHENSTOV, M. G., VISHEVETSKAYA, A. M.,
ORLOV, S. I., ZAVITON, A. P., and TALASH, A. I.

"Polycarbazin"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 95-104 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N503 by T. A. Belyayeva)

Translation: The effectiveness of polycarbazin (I) on apple scab and grapevine mildew equals that of zineb (II) and polyram-combi, while on cherry-fruit gray rot it equals Bordeaux liquid (III) (1 percent), but is ahead of II. I equals II and III for Clasterosporium infection of the cherry plum and tomato macrosporiosis. The decisive factor which determine the length of action of I is precipitation, which washes the preparation off plants.

1/1

- 61 -

USSR

UDC 8.74

ZAIKIN, O. A., PETUKHOVA, N. M.

"Problem of Efficient Allocation of the Information Files on Magnetic Tape"

V sb. Probl. sistemotekhniki. Vyp. 2 (Problems of Systems Engineering. Vyp. 2 --collection of works), Sudostroyeniye, 1972, pp 67-77 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V479)

Translation: The following problem which is characteristic of automated control systems is solved: let $\{M\} = \{M_1, M_2, \dots, M_n\}$ be a set of files belonging to the magnetic taps; l_i is the length of the file M_i , $i = 1; n$; $\|M\|$ is the matrix of the interrelation of the files; m_{ij} is the element of the matrix $\|M\|$ equal to the number of direct references from file M_i to file M_j . Searching the magnetic tapes essentially depends on the mutual arrangement of the files M_i and M_j . Let λ be the length of the tape searched, $\lambda = F(\|M\|, R)$; $\|M\|$ in the given case is equal to a const, R is the n -dimensional vector giving the arrangement of the files on the magnetic tapes. The integral function has the form:

$$F(R) = \sum_{k=1}^{n-1} l_k \left[\sum_{i=0}^{k-1} \sum_{j=k+1}^n m_{ij} \right] + \sum_{k=1}^n l_k \sum_{j=1}^{k-1} m_{kj}$$

1/2

USSR

ZAIKIN, O. A., et al., Probl. sistemotekhniki. Vyp. 2, Sudostroyeniye, 1972, pp 67-77

where $m'_{ij} = m_{ij} + m_{ji}$. It is required that we find R^0 which minimizes $F(R)$. The estimate conditions of optimality of the integral function are presented. The algorithms for finding the impasse and optimal permutations are constructed. The above stated problem is generalized to the case of parallel processing of files for which it is demonstrated that the conditions of optimality of allocation of the files on the magnetic tapes remain as before.

2/2

- 83 -

USSR

UDC: 518:517.948

TIKHONOV, A. N., SHEVCHENKO, V. G., ZAIKIN, P. N., ISHKHANOV, B. S.,
MECHENOV, A. S.

"Calculating the Cross Section of a Photonuclear Reaction From Experimental
Information"

Moscow, Vestnik Moskovskogo Universiteta: Ser. III, Fizika, Astronomiya,
Vol 14, No 3, May/Jun 73, pp 317-325

Abstract: The authors examine certain questions of computer calculation of the numerical value of the cross section of a photonuclear reaction $\sigma(k)$ in accordance with an indirect phenomenon -- the yield of emission products of the reaction $Y(E)$. The paper describes a modification of the Penfold-Leiss method with parametrization of the working step. Also described is a regularizing algorithm in which the sampling criterion is the degree of smoothness of the approximation. Model problems are presented to illustrate the effectiveness of using these algorithms.

1/1

- 56 -

USSR

UDC: 53.07/.08+53.001.5

ZAİKINA, A. G., LUK"YANTSEV, A. F.

"Program for Kinematic Identification of Events on the BESM-6 Computer"

Programma kinematičeskoy identifikatsii sobytii na EVM BESM-6. Soobshch. Ob'yedin. in-ta yadern. issled. Lab. vychisl. tekhn. i avtomatiz. (cf. English above. Reports of the Joint Institute for Nuclear Research. Laboratory of Computer Technology and Automation), 11-5965, Dubna, 1971, 19 pp, ill. Mimeo. (from RZh-Fizika, No 4, Apr 72, Abstract No 4A556)

Translation: The paper describes the GRIND program for the BESM-6 computer, designed for determining the most probable hypotheses for an event (with respect to deficient mass and the chi-square test) and for finding more precise particle parameters for these hypotheses. Résumé.

1/1

USSR

UDC 533.951.08

KIRDYASHEV, K. P., ZAIKINA, A. N.

"Effect of Low Frequency Oscillations on Attenuation of a Superhigh-Frequency Signal in Plasma Beam Discharge"

Moscow, Radiotekhnika i Elektronika, Vol XVI, No 3, March 1971, pp 358-365

Abstract: This article contains a study of attenuation of a superhigh-frequency signal in plasma-beam discharge under operating conditions with intense low-frequency oscillations, and the contribution of scattering to the anomalous attenuation is determined. The attenuation of the signal is measured. The anomalous attenuation conditions are discovered, and the relation of the attenuation characteristics and signal amplitude fluctuations to the intensity and spectrum of the low-frequency oscillations is established. The mechanism of scattering of the probing signal in plasma oscillations arising as a result of the beam-drift instability and leading to anomalous attenuation is investigated. Numerical estimates and a qualitative study of the effect of low-frequency oscillations permit the conclusion to be drawn that the contribution of this phenomenon is predominate by comparison with the mechanism of braking cyclotron absorption. Scattering of the signal in the plasma oscillations complicates

1/2

USSR

KIRDYASHEV, K. P., et al., Radiotekhnika i Elektronika, Vol XVI, No 3, March 1971, pp 358-365

determination of the plasma density by the superhigh-frequency probe method, but additional data can be obtained on the intensity and spectrum of the low-frequency oscillations. It is pointed out that the values of the electron temperature and density determined by the probe method and an interferometer coincide with respect to order of magnitude with the values obtained under analogous conditions on other experimental devices and can be used for approximate calculations. The experimental data are plotted for various pressures and magnetic fields.

2/2

- 43 -

1/2 024 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--THE SYNTHESIS OF PLASMOCCOAGULASE INDUCED BY SOME MICROORGANISMS -U-
AUTHOR-(03)-YELINOV, N.P., ZAIKINA, N.A., CHMILENKO, G.S.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 3,
PP 98-103
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--STAPHYLOCOCCUS, BLOOD SERUM, CULTURE MEDIUM, FUNGUS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1990/1492 STEP NO--UR/0016/70/000/003/0098/0103
CIRC ACCESSION NO--AP0109552
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109552

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTRODUCTION OF THE SERUM INTO THE NUTRIENT MEDIUM CAUSED CONSIDERABLE ACCELERATION OF SYNTHESIS OF STAPHYLOCOCCUS PLASMOCOAGULASE. THIS ACTION WAS RETAINED FOR SOME TIME AFTER THE REMOVAL OF THE INDUCING AGENT ONLY BY THE MICROBIAL CELLS WHICH WERE IN DIRECT CONTACT WITH THE SERUM; THIS ACTION WAS LOST IN FURTHER TRANSFER ON THE MEDIA. THE ACTION OF THE SERUM ON COAGULASE SYNTHESIS WAS NOT ASSOCIATED WITH ITS EFFECT OF REPRODUCTION OF STAPHYLOCOCCUS. IN ALL PROBABILITY, THE INDUCING EFFECT OF THE SERUM DEPENDED ON THE PRESENCE OF PROTHROMBIN AND OF THE COAGULATION FACTOR VII IN IT, WHICH SERVED AS PLASMOCOAGULASE SUBSTRATES. REMOVAL OF THESE FACTORS BY ADSORPTION OR BY INACTIVATION BY HEATING CONSIDERABLY REDUCED THE CAPACITY OF THE SERUM TO INCREASE THE AMOUNT OF COAGULASE IN THE CULTURE MEDIUM. THE RATE OF FORMATION OF COAGULASE BY STAPHYLOCOCCI PROVED TO INCREASE IN THE PRESENCE OF IONIZED MANGANESE. THIS EFFECT WAS MANIFESTED ONLY IN THE PRESENCE OF MANGANESE IN THE NUTRIENT MEDIUM AND DISAPPEARED IMMEDIATELY AFTER ITS REMOVAL. THE CONTENT OF PLASMOCOAGULASE ROSE IN THE CELLULAR EXTRACT OF THE FUNGI GROWN ON THE SERUM CONTAINING MEDIUM. THIS EFFECT WAS REVEALED IN 23 OF 37 STRAINS STUDIED, AMONG WHICH REPRESENTATIVES OF VARIOUS TAXONOMIC GROUPS OF FUNGI WERE PRESENT.

UNCLASSIFIED

USSR

UDC 615.214:547.349

RAZUMOV, A. I., LIORDER, B. G., ZAIKONNIKOVA, I. V., URAZAYEVA, L. G., and
TARZIVOLOVA, T. A., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Studies in the Series of Phosphinic and Phosphinous Acid Derivatives.
LXXXVIII. Synthesis of Diallylphosphinic Acid Esters and Amides and Their
Biological Activity"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 12, Dec 72, pp 24-28

Abstract: Addition of diallylphosphinic acid (I) with vigorous stirring to a
toluene suspension of respective alcohols or amines, followed by a 3 hr
reaction at 100° produced the desired esters and amides upon cooling. The
following $(C_3H_5)_2P(:O)R$ products were obtained: R, b.p.⁰, d_4^{20} , and n_D^{20} being
reported: $OCH_2CH(CH_3)_2NH_2 \cdot HCl$, -, -, -; $OCH_2(CH_2)_7CH_3$, 145-6/0.07 mm, 0.9467,
1.4660; $OCH_2(CH_2)_{10}CH_3$, 156-7/0.07 mm; 0.9301, 1.4670; $N \begin{smallmatrix} CH_2CH_2 \\ CH_2CH_2 \end{smallmatrix} CH_2$,
112-4/0.05 mm, 1.0279, 1.5600; $N \begin{smallmatrix} CH_2CH_2 \\ CH_2CH_2 \end{smallmatrix} O$, 132-4/0.05 mm 1.0950, 1.5100;
 $N(C_3H_7)_2$, 117-9/0.04 mm, 0.9535, 1.4810; and $N(C_4H_9)_2$, 124-6/0.04 mm, 0.9376,
1/2

USSR

RAZUMOV, A. I., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 12, Dec 72, pp 2 -28

1.4770. Propargyl ester of diallylphosphinic acid -- the most active agent -- was prepared by mixing the acid chloride of (I) with the alcohol and triethylamine in ether and stirring for 4 hrs. The product boiled at 97-8°/0.06 mm, $d_4^{20} = 1.0529$, and $n_D^{20} = 1.4900$. Acid chloride of (I) added to 3-aminobutanol-1 in 200 ml of dichloroethane followed by a 2 hr reaction at 60°, removal of the dichloroethane, addition of sodium alkoxide in absolute ether yielded 3-amino-butyl ester of (I) after centrifugation and repeated filtration; b.p. 173-6°/10⁻⁴ mm, $d_4^{20} = 1.0466$, $n_D^{20} = 1.4900$.

2/2

ZAIKOV, B. Ye.

Chemistry

AGING AND STABILIZATION OF POLYMERS

Article by Academician B. M. Emanuel' and Doctor of Chemical Sciences B. Ye. Zaiikov; Moscow, Vsesoyuz. Nauch. Tsentr. Akademi. Nauk SSSR, Russian, Vol 42, No 4, April 1972, pp 109-112.

SPAS 54071
23 May 72

Conference in Moscow

In its scope and representative character the Third Conference on Aging and Stabilization of Polymers substantially surpassed the two preceding conferences. This is quite natural -- interest in that problem is steadily rising, especially in the light of the tasks posed before scientists and workers of the chemical and petrochemical industries by the decisions of the 24th Party Congress.

The Conference, which was organized jointly by the AS USSR, the Ministry of Chemical Industry USSR and the Ministry of Petroleum-Refining and Petrochemical Industry USSR, was held in Moscow on 22-26 November 1971. In the plenary and sectional sessions participated about 750 persons -- representatives of 161 organizations from 54 cities of the Soviet Union. Side by side with chemists, representatives of other branches of science and industry participated actively in the work of the conference: machine-building, electrical engineering, instrument-making, construction, radio engineering, medicine, etc. Eight plenary, 12 plenary-sectional, and 232 sectional reports were presented.

In his address of greeting the chairman of the Scientific Council for High-Molecular Compounds of the AS USSR, N. A. Andrianov, pointed out the importance and urgency of the problem under discussion, noting that it is precisely in the area of investigation of the processes of aging of polymers and researches for ways to stabilize them that fundamental and applied research are closely interrelated; the results of purposeful complex work have a direct yield in practice.

In a report entitled "Main directions and prospects of investigations in the area of the aging and stabilization of polymers," N. M. Emanuel' gave a general characterization of the state of the problem and

Epidemiology

USSR

ZAIROV, K. S., CHICHENIN, P. I., MUKHAMEDOV, S. M., PULATOV, YA. G., LI-GVAN-KHVA, INZHEVATOVA, M. V., ARTYKOV, K. A., and SEREDIN, V. G.

"Methods and Tactics to be Applied in Detecting Local Foci of Cholera"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 12, Dec 71, pp 3-7

Abstract: With the appearance of the El Tor variety of cholera, endemic foci of this disease developed in a number of countries in which classical cholera could not take root. The reason for this is the capacity of El Tor vibrios to survive for prolonged periods of time in the human organism and the environment. Local cholera foci came developed in which the circulation of the agent is sustained by a chain of atypical diseases, prolonged carrier state of the vibrios in humans, and possibly transmission of the infection by aquatic organisms. Discovery of the carrier state among persons with diseases of the bile secretion system led A. G. Niconov (1960) to the conclusion that cholera vibrios may be retained for a long time in the gall bladder. He proved the correctness of this conclusion experimentally. During the recent cholera pandemic, vibrios were detected more frequently in the gall bladder. In cases of El Tor cholera, which is caused by hemolytic varieties of the microorganism, it is advisable to determine the titer of antibodies with reference to the hemolytic enzyme found in the supernatant liquid of

1/2

USSR

ZAIROV, K. S., et al., Meditsinskiy Zhurnal Uzbekistana, No 12, Dec 71, pp 3-7

of meat broth cultures. The complement fixation reaction, which has been used as an immunological test for cholera in Russia since 1909, has been forgotten for inadequate reasons. The very small amount of cholera vibrios present in the stool of cholera patients and vibrio carriers can be detected by means of suspended antibodies, among which alivarin, indanthrone, and anthragallo antibodies are used most frequently. Concentration of cholera vibrios on membrane filters follows by supplementary cultivation (Ye. V. Chibrikova, 1960, 1962) made it possible to increase greatly the sensitivity of the immunofluorescence method of detection. A. K. Adamov et al (1969) isolated El Tro vibrios from fish caught in rivers of Turkmenia. According to results obtained by the authors of this article, cholera vibrios may be detected in the intestine of fish even when tests on the water in which the fish have been caught are negative. Testing of fish is therefore recommended as a method for the detection of latent foci of cholera in bodies of water.

2/2

USSR

~~ZAIRON, K. S.~~, SEMIOTROCHEV, V. L., CHICHENIN, P. I., MUKHAMEDOV, S. K.,
PULATOV, Ya. G., and LI GVAN KHVA, V. T., Central Asian Scientific Research
Antiplague Institute Ministry of Health Uzbek SSR and Uzbek Antiplague
Station

"Some Problems of the Spread of El Tor Cholera and Its Prophylactic Measures"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 2, 1972, pp 10-14

Abstract: Mild cholera cases and, especially, cholera carriers are not always detected or reported. This is especially true for El Tor cholera, which breaks out in alternating waves, first epidemic, then sporadic. It takes a relatively milder course and is less lethal than ordinary cholera, sometimes resembling a gastrointestinal upset. El Tor vibrios found in water sources in certain areas are lysogenic, in others not. Members of the family and neighborhood of those suffering the disease, particularly preschool children, are often carriers, for a period of about four days after contact. Certain important measures dealing with the sources of infection are suggested: 1) compulsory bacteriological examination of persons arriving from Asian countries 2) Epidemiological examination for cholera for all those suffering gastro-intestinal disturbances 3) development and application of effective methods

1/2

USSR

ZAIROV, K. S., et al., Meditsinskiy Zhurnal Uzbekistana, No 2, 1972, pp 10-14

for curing all forms of cholera 4) setting up various types of installations, ensuring strict sanitary inspection, especially in areas of mass passenger travel.

2/2

- 14 -

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CALCULATION OF SPIN LATTICE RELAXATION TIME -U-
AUTHOR--(02)-AMINOV, L.K., ZAITOV, M.M.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 36-9
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS
TOPIC TAGS--SPIN LATTICE RELAXATION, PARAMAGNETIC ION, MATHEMATIC
EXPRESSION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1257 STEP NO--UR/0139/70/013/002/0036/0039
CIRC ACCESSION NO--AP0124908
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0124908

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT.

A GENERAL EXPRESSION IS GIVEN FOR

THE PROBABILITY OF A DIRECT (1 PHONON) RELAXATION TRANSITION FOR AN

ARBITRARY SYMMETRY OF THE ENVIRONMENT OF A PARAMAGNETIC ION WITH AN

EFFECTIVE SPIN OF S EQUALS ONE HALF. THE EXPRESSION, WHICH WAS GIVEN

FOR TETRAGONAL SYMMETRY, IS COMPARED WITH EXPTL. DATA. BETTER AGREEMENT

IS FOUND IF SOME OF THE APPROXNS., WHICH ARE USUALLY USED IN THE

CALCNS., ARE AVOIDED. FACILITY: KAZAN. GOS. UNIV. IM.

UL'YANOVA-LENINA, KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 541.49:(546.799.5+546.799.6+546.658)

YELESIN, A. A., ZAITSEV, A. A., KAZAKOVA, S. S., and YAKOVLEV, G. N.

"Complex Formation of Trivalent Americium, Curium, and Promethium Ions With Phosphonoacetic Acid"

Leningrad, Radiokhimiya, Vol 14, No 4, 1972, pp 541-545

Abstract: Dissociation constants were determined for phosphonoacetic acid [PAA] at 25°C and an ionic strength of 0.2 (NH_4ClO_4). By means of the ion exchange method on a cation exchange resin, complex formation of Am^{3+} , Cu^{3+} and Pm^{3+} with PAA was investigated. It was shown that in the $1 \cdot 10^{-3}$ -- $1 \cdot 10^{-1}$ M concentration range of PAA and at pH 2, 3, and 4 all trivalent americium, curium and promethium ions form complexes of the composition $[\text{M}(\text{H}_2\text{A})]^{2+}$, $[\text{M}(\text{HA})]^+$ and $[\text{M}(\text{HA})_2]^-$. Stability constants for these complexes were determined and compared to respective complexes with acetate, phosphate, and methylphosphonic acid ions. The stability of the complexes with single charge PAA anion is similar to the stability of analogous complexes with methylphosphonic acid. Doubly charged ion complexes $[\text{M}(\text{HA})]^+$ are practically equal in their stability to the acetate complexes $[\text{M}(\text{A})_2]^+$.

1/1

- 72 -

USSR

UDC 541.49:546.79

YELESIN, A. A., ZAITSEV, A. A., IVANOVICH, N. A., KARASEVA, V. A., and
YAKOVLEV, G. N.

"Complex Formation of Trivalent Americium, Curium, and Promethium Ions with
Hydroxymethylphosphonic Acid and Hydroxymethylethylphosphinic Acid"

Leningrad, Radiokhimiya, Vol 14, No 4, 1972, pp 546-551

Abstract: Dissociation constants of hydroxymethylphosphonic acid [HMPA] and hydroxymethylethylphosphinic acid [HMEPA] were determined at 25°C; it was found that in their strength these acids are close to phosphonic acid. Using the ion exchange method on a cation exchange resin, the complex formation of Am^{3+} , Cu^{3+} and Pm^{3+} with HMPA and HMEPA was studied. HMPA forms two complexes: $[\text{M}(\text{HA})]^{2+}$ and $[\text{M}(\text{HA})_2]^+$, while HMEPA is capable of only one complex formation of the $[\text{MA}]^{2+}$ type. It was shown that no additional binding between the metal ions and hydroxy groups of these acids takes place.

1/1

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--VIBRATIONS OF THE NITRO GROUP IN NITROPHENOLS WITH INTRAMOLECULAR
HYDROGEN BONDING IN PROTON ACCEPTOR SOLVENTS -U-
AUTHOR--(03)-GRANZHAN, V.A., SEMENENKO, S.V., ZAITSEV, P.M.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(5), 922-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--AROMATIC NITRO COMPOUND, PHENOL, HYDROGEN BONDING,
INTRAMOLECULAR MECHANICS, SOLVENT ACTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605018/B11 STEP NO--UR/0368/70/012/005/0922/0925
CIRC ACCESSION NO--AP0140800
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140800

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF INTRAMOL. H BONDING ON FREQUENCIES (NU) OF SYM. AND ASYM. VALENCE VIBRATIONS OF NO SUB2 GROUPS OF SUBSTITUTED NITROPHENOLS, IN DIFFERENT SOLVENTS, AND THEIR MIXTS. WAS STUDIED. IN BASIC SOLVENTS, NU SUBSYM INCREASED DUE TO DISRUPTION OF THE INTRAMOL. H BOND (NO SUB2-OH) AND FORMATION OF INTERMOL. H BOND BETWEEN OH GROUP OF THE PHENOLS AND MOLS. OF THE SOLVENT. IN MIXED SOLVENTS, THE INTENSITY OF NU SUBSYM OF THE FREE AND BONDED NO SUB2 GROUPS DEPENDED ON THE CONC. OF NONPOLAR AND PROTON ACCEPTOR SOLVENTS.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--0200T70
TITLE--ANIONIC POLYMERIZATION OF EPSILON CAPROLACTAM IN THE PRESENCE OF
ACTIVATORS WITH UNSATURATED GROUPS -U-
AUTHOR--(05)--KORSHAK, V.V., FRUNZE, T.M., ZAITSEV, V.I., KURASHEV, V.V.,
BARCHINITSER, T.M.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(2) 416-23
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POLYMERIZATION, CAPROLACTAM, SODIUM, POLYMER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/0324 STEP NO--UR/0459/70/012/002/0416/0423
CIRC ACCESSION NO--AP0111518
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111518

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLYMN. OF EPSILON CAPROLACTAM (I) IN THE PRESENCE OF NA IS ACCELERATED BY N,METHACRYLOYL, EPSILON,CAPROLACTAM (II) AND H SUB2 C:CHCONPH SUB2 (III). THE PROPERTIES OF POLY, EPSILON, CAPROLACTAM DEPEND ON THE AMT. OF II OR III USED. VERY SATISFACTORY POLYMER BLOCKS WERE OBTAINED WHEN 0.35-1.00 MOLE PERCENT II OR 0.50-2.00 MOLE PERCENT III WERE ADDED TO I TOGETHER WITH 1 EQUIV. (WITH RESPECT TO II OR III) NA. LARGER OR SMALLER AMTS. OF II OR III GAVE BLOCKS WITH SURFACE CRACKS. THE INCREASE IN THE AMT. OF II OR III INCREASES THE INSOLY. OF THE POLYMER IN HCONME SUB2. THIS IS DUE TO THE PARTIAL COPOLYMN. OF I WITH II OR III. THE MECHANISM OF ACCELERATION OF POLYMN. BY II OR III INVOLVES FORMATION OF POLYMERIC ACTIVATOR MOLS., SUCH AS IV.

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0054586

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISTRIBUTION OF PRIME90 SR IN ALGAE, CORALS, ECHINODERMS, AND MOLLUSCS OF THE RED SEA AND THE GULF OF MEXICO WAS STUDIED. THE EXTENT OF STRONTIUM AND YTTRIUM RECOVERY WAS ESTABLISHED DURING THE RADIOCHEMICAL DETERMINATION OF PRIME90 SR IN MARINE ALGAE AND WATER. COMPARISONS OF THE PRIME90 SR CONCENTRATION IN RELATED TYPES OF SARGASSUM AND MADREPORE CORALS SHOWED THAT THE CONTENT OF THIS RADIONUCLIDE WAS 1.5 TO 2 TIMES REGATER IN RELATED ORGANISMS IN THE GULF OF MEXICO THAN IN THE RED SEA. THE HIGHEST CONCENTRATIONS OF PRIME90 SR WERE RECORDED IN THE SHELLS OF MOLLUSCS AND IN CORALS.

FACILITY: GOSUDARSTVENNYI KOMITET PD ISOP'ZOVANIYU ATOMNOI ENERGII SSSR, MOSCOW.

UNCLASSIFIED

ACC. NO:

AF0034400

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki 1970, Vol 15, Nr 2, pp 132-135

TOXIC PROPERTIES AND ANTIBACTERIAL ACTIVITY OF DIHYDROSTREPTOMYCIN PREPARATIONS CONTAINING VITAMINS

Zak, A. F.; Yermolova, O. B.

Antibiotic Department of L. A. Tarasevich State Control Institute, Moscow

Antimicrobial and toxic properties of 3 dihydrostreptomycin salts were studied. Inclusion of ascorbic or panthotenic acids to the molecule of dihydrostreptomycin resulted in somewhat lower acute toxicity to mice and a markedly increased cytotoxicity. As compared to dihydrostreptomycin sulfate dihydrostreptomycin ascorbate was 10 times more toxic with respect to tissue cell cultures. The local irritating effect of dihydrostreptomycin ascorbate and panthotenate completely matched with their cytotoxic properties and was much higher than that of dihydrostreptomycin sulfate. Studies with cell cultures inoculated with staphylococci showed that dihydrostreptomycin panthotenate and especially ascorbate had a much higher sanitation effect on fibroblast cytoplasm than dihydrostreptomycin sulfate.

REEL/FAME

19711060

D.A.

16

USSR

UDC 533.6.011

GILINSKIY, S. M., ZAK, L. I.

"Hypersonic Nonstationary Flow of a Fuel Gas Mixture Around Bodies of Different Shape"

V sb. 3-y Vses. simpozium po goreniyu i vzryvu, 1971 (Third All-Union Symposium on Combustion and Explosion, 1971--collection of works), Chernogolovka, 1971, pp 146-148 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B190)

Translation: A study was made of the pulsation nonstationary combustion conditions occurring during hypersonic flow of a reactive gas around the front part of blunt bodies and a wedge. The interaction of the blunt body with the centered expansion and compression waves is investigated. As a result of numerical calculations of the two-dimensional flows it was established that the introduced disturbances can lead to the occurrence of autooscillations of the shock wave and gas parameters behind it with an amplitude and frequency depending on the magnitude of the activation energy. The region of stability with respect to small and finite disturbances turns out to be appreciably larger for the two dimensional flow than in the case of one-dimensional detonation. The effect of nonstationary disturbances on purely supersonic flows is studied in the example of a wedge undergoing small oscillations near the edge. It is demonstrated that the vibrations of the wedge cause analogous oscillations of

1/2

USSR

GILINSKIY, S. M., et al., 3-y Vses. simpozium po goreniyu i vzryvu, 1971, Chernogolovka, 1971, pp 146-148

the shock wave which are out of phase and smaller with respect to amplitude. It is noted that the amplitude and frequency of the gas parameter oscillations depend to a great extent on the magnitude of the adiabatic exponent.

2/2

- 29 -

ZAK, M. A.

RAN / R-760 / 5-MAY-72
Doc 1970- 10

(4)

temperature front attenuates exponentially with time and does not affect the stress wave motion. After passage of the elastic-wave front, a field of quasi-static stresses is established.

Boyko, M. M., V. A. Letyagin, and
V. S. Solov'yev. Experimental
investigation of shock wave attenuation
in steel. ZhPMTF, no. 2, 1972, 101-104.

Shock wave attenuation in steel specimens from the contact blast of a plane-wave (cyl) charge, with a 50 mm diameter and 10 mm height, was studied experimentally. Monotonic attenuation of the maximum shock-compression pressure was observed at increasing distances from the contact surface. Shock wave attenuation was caused by a relief wave which overtook the shock waves from the direction of the charge. The propagation rates of the primary and secondary shock waves were computed using the known shock-wave velocity and the experimentally obtained time intervals between the emergence of the waves to the free surface of variable thickness plates. The experiments show that up to a thickness of $x_1/h \approx 1.35$ (x_1 , specimen thickness; h , charge height) the shock waves propagated in steel in three stages, and thereafter degenerated into a two-stage form.

Zak, M. A. Geometric shock waves
in an anisotropic elastic body. MTT,
no. 3, 1972, 161-162.

An investigation is made of a quasi-linear hyperbolic system of equations for wave propagation in an elastic anisotropic medium. Surface wave front equations of motion are derived and

1/2 017
UNCLASSIFIED
TITLE--GAS PHASE IN THE FLUIDIZED BED CHLORIDIZING ROASTING OF PYRITE
CINDERS -U-
AUTHOR--ZAK, M.S., LEYZEROVICH, G.YA., MAISKIY, O.V.
PROCESSING DATE--11SEP70
COUNTRY OF INFO--USSR
SOURCE--TSVET. METAL. 1970, 43(1), 13-16
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--FLUIDIZED BED, PYRITE, GAS STATE, WATER VAPOR, CALCIUM
CHLORIDE, MELTING POINT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1981/1738
STEP NO--UR/0136/70/043/001/0013/0016
CIRC ACCESSION NO--AP0051526
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0051526

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PYRITE CINDERS MIXED WITH CACL SUB2 WERE ROASTED IN A FLUIDIZED BED, USING NATURAL GAS AS FUEL. AT 1000-1100DEGREES, CACL SUB2 VOLATILIZED AND DECOMP. TO CAD AND OTHER HIGH MELTING COMPODS. THE OPTIMUM O CONCN. FOR THE VOLATILIZATION OF SIMILAR TO 70PERCENT OF THE CU AND ZN WAS 9-10PERCENT AT 1000DEGREES AND 4-6PERCENT AT 1050DEGREES, AND BEST PARTICLE SIZE WAS SMALLER THAN 0.074 MM. INCREASING THE O CONCN., MARKEDLY DECREASED THE CU VOLATILIZATION RATE, AND TO A LESSER DEGREE THAT OF ZN. AT LARGER THAN 10PERCENT, H SUB2 O VAPOR HAD A DELETERIOUS EFFECT ON CU AND ZN VOLATILIZATION, TO A SMALLER DEGREE ON AG, AND LITTLE ON AU. THE VOLATILIZATION DECREASED WITH INCREASING CINDER PARTICLE SIZE.

UNCLASSIFIED

USSR

UDC 51

ZAK, YU. A.

"Game Problems of Obtaining Objective Information on the True Possibilities of Active Subsystems"

V sb. Prom. kibernetika (Industrial Cybernetics -- collection of works), Kiev, 1971, pp 154-163 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V528)

No abstract

1/1

- 46 -

USSR

UDC 51

ZAK, YU. A., LENIN, A. P., FISHBEYN, M. A.

"Algorithms for Calculating the Technological Component Cost of Various Types of Finished Production and Intermediate Products of Complex Production Complexes"

V sb. Prom. kibernetika (Industrial Cybernetics -- Collection of Works), Kiev, 1971, pp 205-212 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V541)

No abstract

1/1

- 51 -

USSR

UDC: 519.1

ZAK, Yu. A., Editorial Staff of "Avtomatika i vychisl. tekhn."

"An Algorithm for Solving a Minimax Problem on a Graph"

Riga, Algoritm resheniya odnoy minimaksnoy zadachi na grafe (cf. English above), 1972, 9 pp, ill. bibl. 2 titles (manuscript deposited in VINITI, No 5184-72 Dep. from 2 Dec 72) (from RZh-Kibernetika, No 5, May 73, abstract No 5V502 Dep by the author)

Translation: The following problem is considered. The entire set of vertices of a complete oriented graph must be broken down into m subsets having a single common vertex i^* , and the closed Hamiltonian loops in each subset must be defined to minimize the loop of maximum length, i. e.

$$\max_{1 \leq \beta \leq m} L_\beta \rightarrow \min,$$

where L_β is the length of the closed Hamiltonian loop in the subset of vertices $I_\beta \cap I_{\beta'} = i^*, \bigcup_{\beta=1}^m I_\beta = I, \beta \neq \beta'; \beta, \beta' = 1, \dots, m.$ The

1/2

USSR

ZAK, Yu. A., Algoritm resheniya odnoy minimaksnoy zadachi na grafe, 1972, No 5184-72 Dep

algorithm for solution of the problem, which is based on the method of sequential analysis of variants and uses procedures of tagging graph vertices, consists in constructing allowable paths of predetermined fixed length in the graph. As construction proceeds, the value of $\max L_g$ increases in such a way that no permissible path in the graph is omitted. The construction process involves intensive screening of unproductive continuations (on the basis of a corollary of a theorem proved in the paper on a property of optimum solutions of the problem). The constructed paths are a certain approximation to the solution of the problem from below. The minimum length of the loop $\max L_g$ corresponding to all restrictions of the problem is a solution. The paper gives a detailed step-by-step computational scheme of the algorithm which is illustrated by solution of a numerical example. The volume of computations by the proposed algorithm is no greater than in the algorithm for solving the traveling salesman problem on a graph.

2/2

USSR

UDC: 51

ZAK, Yu. A.

"On Some Problems of Determining the Optimum Sequence for Retooling"

V sb. Operativn. upr. proiz-vom (Operational Control of Production--collection of works), Moscow, "Nauka", 1971, pp 119-128 (from RZh-Kiber-netika, No 4, Apr 72, Abstract No 4V452)

Translation: The problem known from the literature on minimizing the time for machining n parts on a single machine tool is considered under the condition of supplementary stipulation of calendar periods for planned machine stoppages, the durations of these stoppages, and also the vector of the retooling time. The theory of graphs is used for the solution. Author's abstract.

1/1

USSR

UDC: 512.25/.26+519.3:330.115

ZAK, Yu. A.

"On a Class of Extremum Problems of Division Into Permissible Subsets and Orderings"

V sb. Tekhn. kibernetika. Vyp. 15 (Technical Cybernetics--collection of works, No 15), Kiev, 1970, pp 27-36 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V611)

Translation: Let the set of points $I = \{1, 2, \dots, n\}$ and the matrix of distances between them $A = \|a_{ij}\|$ be given. Several versions of the problem of decomposing I into m subsets ($m < n$) I_1, I_2, \dots, I_m are considered. The term L_β is used to designate the (sought) length of the Hamiltonian contour in the subset of vertices of I_β , while $M(I_\beta)$ denotes the number of elements in I_β . The possibilities for the criterion of optimality are:

$$\sum_{\beta=1}^m L_\beta \rightarrow \min. \quad (1)$$

$$\max_{1 \leq \beta \leq m} L_\beta \rightarrow \min. \quad (2)$$

1/2

- 33 -

ZAK, Yu. A., Tekhn. kibernetika. Vyp. 15, Kiev, 1970, pp 27-36

The possibilities for limitations imposed on subsets of I_β :

$$M(I_\beta) > 1; \quad (3)$$

$$I_{\beta_1} \cap I_{\beta_2} = \emptyset, \beta_1, \beta_2 = 1, \dots, m, \beta_1 \neq \beta_2; \quad (4)$$

$$M(I_{\beta_1} \cap I_{\beta_2}) = 1, \beta_1, \beta_2 = 1, \dots, m, \beta_1 \neq \beta_2. \quad (5)$$

Ten extremum problems obtained by various combinations of (1)-(5) are formulated. The formulation of these problems also involves some additional assumptions. Other problems of a similar type are pointed out, and it is noted that these problems are close to the "n traveling salesman" problem known in the literature. The author also indicates possible applications in construction of information systems, in the theory of schedules, etc. The properties of assumed solutions are analyzed, and algorithms of branches and boundaries are presented (RZh-Mat, 1964, 8V321). Some conclusions on the effectiveness of the algorithms are drawn on the basis of computer experiments. Yu. Finkel'shteyn.

USSR

UDC 512.25/.26+519.3:330.115

ZAK, Yu. A.

"One Stochastic Problem of Optimization of Technological Modes for Continuous Production Processes Using An Approximate Mathematical Model (Using the Process of Production of Paper as an Example)"

Tekhn. Kibernetika. Vyp. 7, [Engineering Cybernetics, No 7--Collection of Works], Kiev, 1970, pp 47-59, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1970, Abstract No. 5V550).

No Abstract.

USSR

UDC 621.373:530.145.6

SEMEV, B. I., ZAK, Yu. M.

"Experimental Investigation of Maser Sorting Systems (Abstract of Deposited Manuscript)"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. 7, p 148 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D185 Dep)

Translation: The authors give the results of an experimental investigation of the angular distribution of molecules at the output of sorting systems of ammonia masers. Radiation patterns are given for a four-rod conventional (straight) and a bent sorting system. The conventional system has sections of molecular excess and deficiency. The basic flux of sorted molecules at the output of the sorting system is concentrated in the output aperture of the sorting system. An explanation is given for the causes leading to this. The patterns for a bent system (at an overall angle $\theta_c = 5^\circ$) give a picture of the angular displacement of the maximum of molecules in the upper working range sorted by the system. This maximum lags behind θ_c by a factor of two for the given sorting system and a field strength of the order of 60 kV/cm. The balance-compensation method of measuring molecular fluxes was used in taking the radiation patterns. Resumé.

1/1

Nitrogen Compounds

USSR

UDC 615.281,221.1,547.466

ZAKALYUZHNYI, M. V., Perm Pharmaceutical Institute

"Synthesis and Biological Activity of the Diarylidene Derivatives of the Dihydrazides of Ethylene-1,2-Dioxamic Acid"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 2, Feb 73, pp 11-12

Abstract: The diethyl esters of ethane-1,2-dioxamine acid $(CH_2NHCOOCCO_2H_5)_2$ (I), its dihydrazide (II), the dibenzylidene derivative of the dihydrazide $(CH_2NHCCCONHNHCHC_6H_5)_2$ (III), and 10 diarylidene derivatives of the title compound $(CH_2NHCOCONHNHCHAr)_2$ were prepared. The physical and chemical properties of the derivatives were similar to those of the corresponding starting material. The UV spectrum of (I) had one peak at 222 millimicrons and that of (II) at 220 millimicrons. Compounds I-III and the derivatives for $Ar=2-HOC_6H_4$ and $Ar=3-CH_3O-4-HOC_4H_3$ in dilutions of 1:1000 showed activity towards neither the acid-tolerant B_c saprofit nor the bacilli of avian and human tuberculosis. Physical data, elemental composition, and preparation are given for the derivatives.

1/1

USSR

UDC 536.46:533.6

ARTYUKH, L. Yu., ZAKARIN, E. A., KUBYSHKINA, V. D.

"Plane Laminar Jet of a Fuel-Gas Mixture"

V sb. Prikl. i teor. fizika (Applied and Theoretical Physics -- Collection of Works), No. 3, Alma-Ata, 1972, pp 207-212 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B944)

Translation: A theoretical study of a previously mixed fuel mixture of gases entering a satellite inert flow is described. The mathematical model of the process is a set of equations of the reacting boundary layer. A computer solution is given. Direct and inverse Bunsen burners were obtained. The results are in good agreement with experimental data. It is shown that the distribution of temperature, velocity concentrations and combustion along the line of the flow lies on a universal curve if the coordinate origin is placed at the point of maximum reaction velocity. Fields of isotherms and lines of flow are given. 7 ref. Authors' abstract.

1/1

1/2 027 UNCLASSIFIED
TITLE--ELEMENTS OF SENSORY COMPENSATION IN THE INVALIDS EQUIPPED WITH
BIOELECTRIC FOREARM PROSTHESES -U-
AUTHOR-(02)-LINETSKIY, M.L., ZAKARLYUKA, G.D.
COUNTRY OF INFO--USSR
SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 5, PP 14-17
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PROSTHESIS, ARTIFICIAL ORGAN, ELECTROPHYSIOLOGY, SENSORY
PHYSIOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REL//RANE--3004/0749 STEP NO--UN/9115/70/000/005/0014/0017
CIRC ACCESSION NO--AP0231344
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 027

GIRC ACCESSION NO--AP0131344

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE COMPENSATORY POTENTIALITIES OF PERCEPTION OF FINGER ORIENTATION OF BIOELECTRICAL FOREARM PROSTHESIS WITH RELAY CONTROL OF THE CENTRAL RESEARCH INSTITUTE OF PROSTHESIS CONSTRUCTION WERE STUDIED IN INVALIDS. THE AMPUTEE HAD TO BLINDLY REPRODUCE THE GIVEN DEGREE OF EXTENSION OF FINGERS OF THE ARTIFICIAL HAND. IN ONE VARIANT OF STUDIED THE ORDERED AND REPRODUCED EXTENSION WAS REALIZED BY THE PROSTHESIS; IN THE OTHER VARIANT, THE GIVEN EXTENSION WAS REALIZED BY THE NORMAL HAND, AND THE REPRODUCED ONE BY THE PROSTHESIS. TEN OF THE EXAMINED AMPUTEES DID NOT SHOW ANY MARKED DIFFERENCE IN REPRODUCTION OF FINGER POSITION IN COMPARISON WITH NORMAL PERSONS (CONTROL GROUP OF 77 SUBJECTS). HOWEVER, SUCH A DEGREE OF REPRODUCTION MAY BE ONLY ACHIEVED UNDER CONDITION OF INFORMATION ABOUT THE INITIAL POSITION OF FINGERS. USUALLY, RAPPROCHEMENT OF FINGERS BEGINS WITH FULL OPENING OF THE HAND. IT IS ASSUMED THAT COMPENSATION OF MUTUAL ORIENTATION PERCEPTION OF THE PROSTHESIS FINGERS IS REALIZED BY THE MECHANISM OF STRESS TIME READING OF THE GOVERNING MUSCLES. FACILITY: KHARKOV. INSTITUT PROTEZIROVANIYA, ORTOPEDI I TRAVMATOLOGII IM. N. I. SITENKO.

UNCLASSIFIED

Biophysics

USSR

UDC 617.574-089.28-07:616.8-
009.6-003.96-01

LENETSKIY, M. L., Candidate of Medical Sciences and ZAKARYUKA, Zh. D., Kharkov
Institute of Prosthesis, Orthopedics, and Traumatology imeni Prof. M. I. Sitenko

"Elements of Sensory Compensation in Amputees Fitted with a Bioelectrical
Forearm Prosthesis"

Moscow, Ortopedia, Travmatologiya, i Protezirovaniye, No 5, 1970, pp 14-17

Abstract: Perception of the distance between the thumb and first finger was studied in ten one-handed amputees fitted with a bioelectrical forearm prosthesis with relay control. There were two variations of the experiment: (i) the amputee while blindfolded had to open the prosthesis to a prescribed degree and then duplicate the act with the artificial hand; (ii) he had to open the normal hand to a prescribed degree and do the same thing with the artificial hand. The results showed that there was no statistically significant difference between the amputees and the normal controls with respect to the precision in duplicating the position of the fingers of the natural and artificial hands, whether the act was performed by each hand successively (first variation) or simultaneously (second variation). This precision was possible only when the amputees were aware of the initial position of the fingers.

1/1